

CLAIMS

What is claimed is:

- 1 1. A fiber reinforced plastic article comprising:  
2 a liner;  
3 at least one single material fiber layer wound on the liner; and  
4 at least one hybrid fiber layer wound on the single material fiber layer, the at least  
5 one single fiber layer and the at least one hybrid fiber layer impregnated with resin.
- 1 2. The article as defined in claim 1 wherein the liner comprises thermoplastic tubing.
- 1 3. The article as defined in claim 1 wherein the at least one single material fiber  
2 layer comprises glass fiber.
- 1 4. The article as defined in claim 1 wherein the at least one single material fiber  
2 layer comprises one selected from the group of glass, carbon and aramid.
- 1 5. The article as defined in claim 1 wherein the at least one hybrid fiber layer  
2 comprises glass fiber and carbon fiber, each of the glass and carbon making up about 50  
3 percent by volume of the composite fiber layer.
- 1 6. The article as defined in claim 1 wherein the resin comprises thermoset resin.
- 1 7. The article as defined in claim 1 wherein the resin comprises thermoplastic resin
- 1 8. The article as defined in claim 1 wherein the resin comprises ceramic resin.

- 1     9.     The article as defined in claim 1 wherein the resin comprises metallic resin.
- 1     10.    The article as defined in claim 1 further comprising a plurality of hybrid fiber  
2     layers wound successively on top of the at least one single fiber layer, each hybrid fiber  
3     layer wound in an opposed lay direction to the previously wound hybrid fiber layer.
- 1     11.    A method for making a wound fiber reinforced plastic article, comprising:  
2     winding at least one single material fiber layer over a liner; and  
3     winding at least one hybrid fiber layer over the at least one single material fiber  
4     layer, the at least one single material fiber layer and the at least one hybrid fiber layer  
5     impregnated with resin.
- 1     12.    The method as defined in claim 11 further comprising winding a plurality of  
2     hybrid fiber layers on top of the at least one hybrid fiber layer, each of the plurality of  
3     hybrid fiber layers wound in an opposed lay direction to the previous hybrid layer.
- 1     13.    The method as defined in claim 11 wherein the liner comprises thermoplastic  
2     tubing.
- 1     14.    The method as defined in claim 11 wherein the at least one single fiber layer  
2     comprises glass fiber.
- 1     15.    The method as defined in claim 11 wherein the at least one single material fiber  
2     layer comprises one selected from the group of glass, carbon and aramid.

- 1 16. The method as defined in claim 11 wherein the at least one hybrid fiber layer  
2 comprises glass fiber and carbon fiber, each of the glass and carbon making up about 50  
3 percent by volume of the composite fiber layer.
- 1 17. The method as defined in claim 11 wherein the resin comprises thermoset resin,  
2 the method further comprising heat curing the resin.
- 1 18. The method as defined in claim 11 wherein the resin comprises thermoplastic  
2 resin, the method further comprising heat consolidation of the resin.
- 1 19. The method as defined in claim 11 wherein the resin comprises ceramic resin, the  
2 method further comprising heat curing of the resin.
- 1 20. The method as defined in claim 11 wherein the resin comprises metallic resin, the  
2 method further comprising heat consolidation of the resin.
- 1 21. The method as defined in claim 11 wherein at least one of the at least one single  
2 material fiber layer and the at least one hybrid fiber layer is impregnated with resin prior  
3 to the winding.